AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A method for cutting ~~the separation of~~ light-conducting fibers, the method ~~by means of CO_2 laser radiation~~ comprising the steps of:

(a) selecting from CO_2 laser radiation a disengaged operative beam comprising individual pulses; ~~with beam parameters as follows:~~

~~Pulse peak power ($\hat{P}$) = some W $\leq \hat{P} \leq$ 1kW,~~

~~Pulse half value (τ_{imp}) = $10^{-5} \leq \tau_{imp} \leq 10^{-4}$ sec~~

~~Pulse repetitive frequency (f_{imp}) = 100 Hz $\leq f_{imp} \leq$ a plurality of kHz;~~

(b) focusing the operative beam on a fixed light-conducting fiber; ~~and~~

(c) moving the operative beam back and forth in a plane along a working zone over the fiber, so that ~~per pulse,~~ one elementary volume of fiber material is removed per pulse, wherein one elementary volume ~~which~~ is approximately equal to the product of the optical penetration depth ~~(d)~~ into the fiber and ~~times~~ the cross section surface area of the incident operative beam; ~~cross-section;, with a diameter somewhat equal to that of the focus (d_f), but in any case, smaller than 2 (d_f), is removed,~~

(d) providing a cooling off phase between each back and forth movement of the beam to cool the working zone; and

(e) repeating steps (c) and (d) until the light-conducting fiber is completely cut through.

2. (Canceled)

3. (Canceled)

4. (Currently amended) The method of claim 1, wherein the light-conducting ~~individual~~ fibers comprise different shapes and thicknesses.

5. (Currently amended) The method of claim 1, wherein the light-conducting fibers comprise[[s]] a ~~at least one of~~ fiber bundles ~~and fiber components~~.

6. (Currently amended) The method of claim 1, wherein the elementary volume is smaller than 10^{-3} of ~~as compared to a~~ the total volume of fiber material removed upon a through cut~~complete separation~~, and the optical penetration depth ~~(d) made at a single overrun of the bundle by the probe~~ is small ~~as~~ compared to the diameter of the core of the fiber~~'s core~~.

7. (Currently amended) The method of claim 1, further comprising the step of blowing a gas on ~~wherein~~ the working zone ~~is blown with an operational gas to eject the evolved material vapors from the working zone~~.

8. (Currently amended) The method of claim 1[[4]], wherein the light conducting fibers are selected from the ~~a~~ group consisting ~~consiting~~ of mono-mode fibers, multi-mode fibers, gradient fibers, unclad fibers, and clad fibers.

9. (Currently amended) The method of claim 7, wherein the ~~operational~~ gas comprises ~~consists of~~ purified compressed air at about 1 bar working pressure.

10. (New) The method of claim 1, wherein the parameters of the operative beam are as follows:

Pulse peak power ($\hat{P}$): $\hat{P} \leq 1$kW, but at least on the order of W;

Pulse period (τ_{imp}): 10^{-5} s $\leq \tau_{imp} \leq 10^{-4}$ s; and

Pulse repetitive frequency (f_{imp}) : 100 Hz $\leq f_{imp} \leq$ a plurality of kHz.

11. (New) The method of claim 1, wherein the cooling off phase is from about 10 ms to about 100 ms.

12. (New) The method of claim 1, wherein the method produces a cut surface at a right angle to the axis of the fiber.

13. (New) The method of claim 1, wherein the method produces a cut surface at an inclined angle to the axis of the fiber.

14. (New) The method of claim 1, wherein the Rayleigh length (Z_R) of the focused beam is greater than the total diameter of the fiber.

15. (New) The method of claim 1, wherein the diameter of the incident operative beam ranges between about equal to the diameter of the focus spot (d_f) and less than twice the diameter of the focus spot (d_f).